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topic - Pott’s Spine: Rehabilitation of Patients with Musculoskeletal Problems and Nursing Management

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Introduction

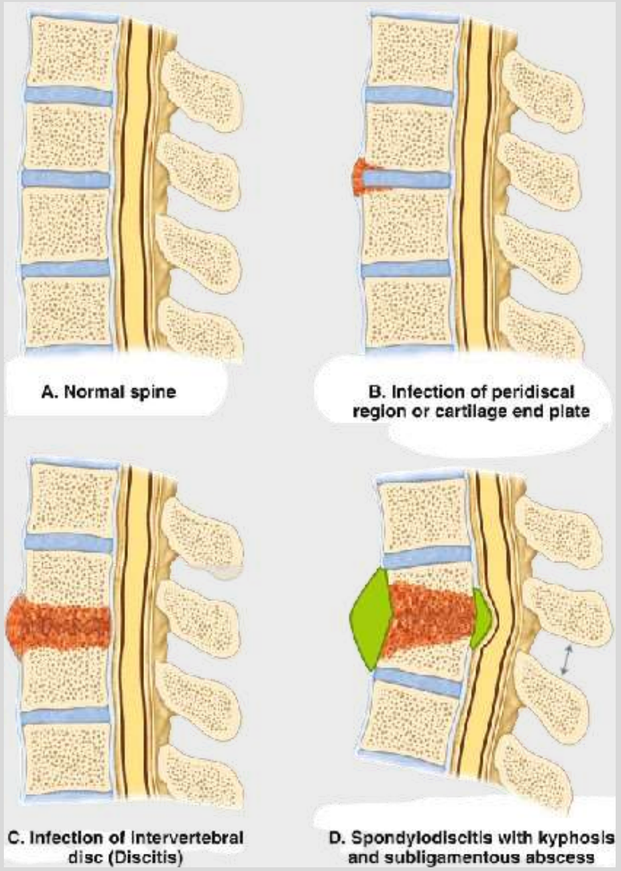
Pott’s spine is the most common form of skeletal tuberculosis.

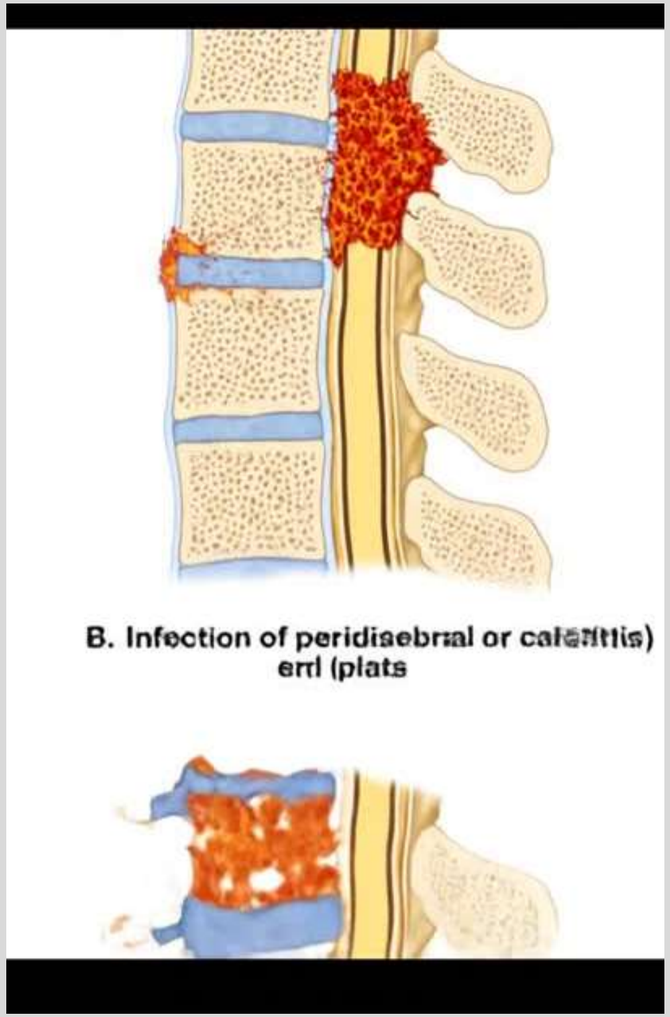
It mainly affects the vertebral column and leads to destruction of vertebrae, deformity, and neurological complications if not treated early.

Definition

Pott’s spine is a tubercular infection of the spine caused by Mycobacterium tuberculosis,

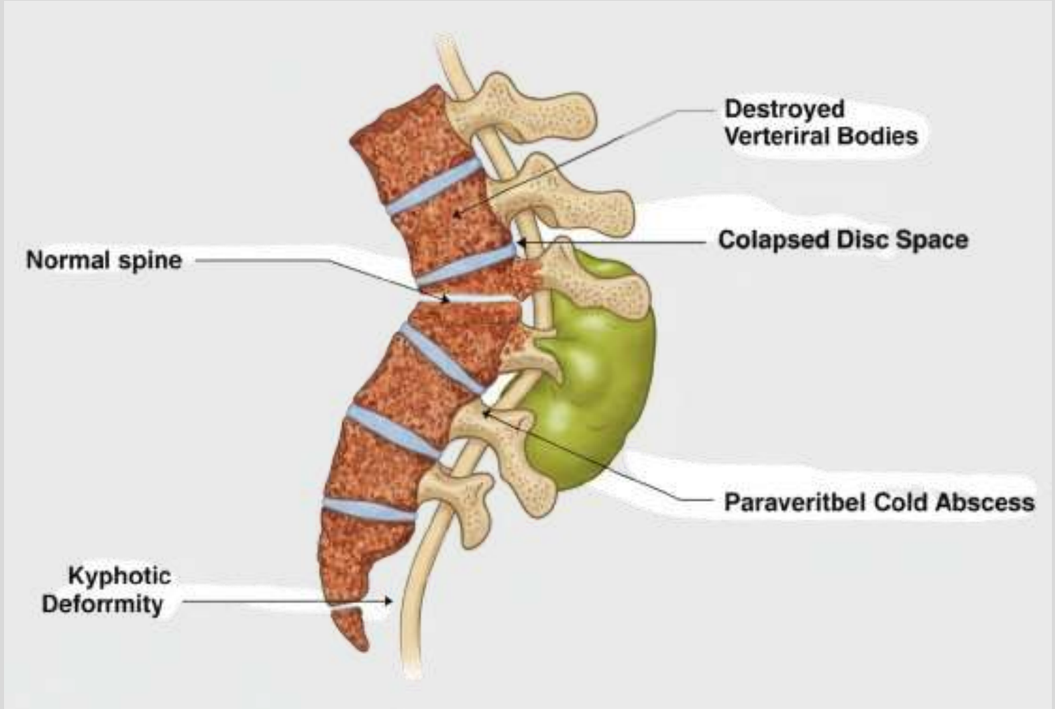
resulting in vertebral destruction, deformity, and possible spinal cord compression.


A. Normal spine
B. Infection of peridiscal region or cartilage end plate
C. Infection of intervertebral disc (Discitis)
D. Spondylodiscitis with kyphosis and subligamentous abscess



Types

- Paradiscal: The infection starts in the metaphyseal region of the vertebral body near the disc (most common).
- Central: The infection starts in the center of the vertebral body (leads to early collapse/vertebra plana).
- Anterior: The infection spreads under the anterior longitudinal ligament (involves multiple vertebrae).
- Posterior: Affects the posterior elements like pedicles and laminae (rare).



Caus
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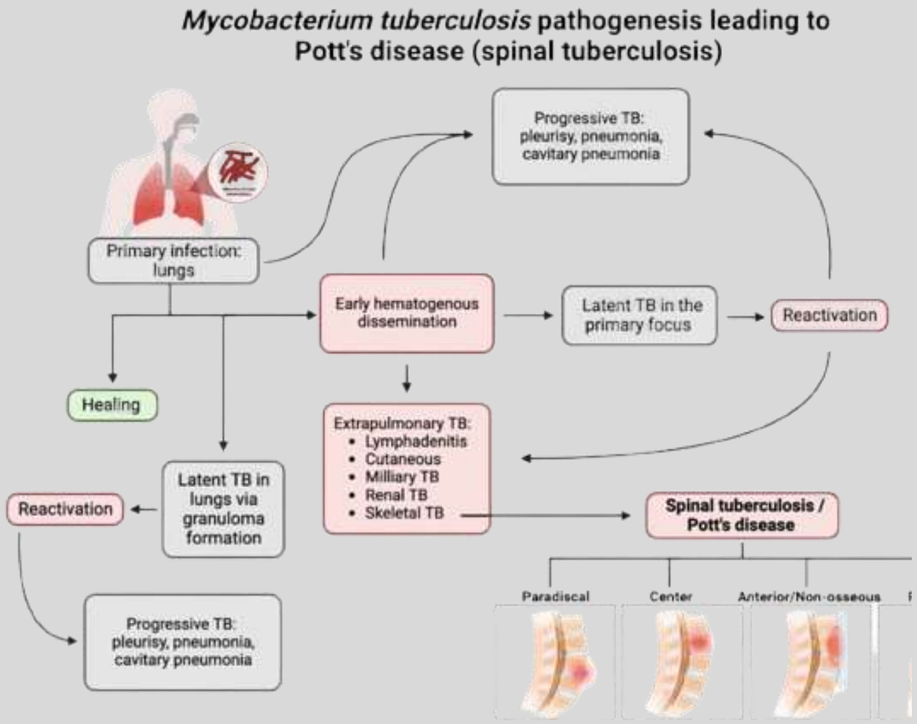
- **Causative Agent:** Mycobacterium tuberculosis.
- **Route of Transmission:** Usually secondary to a primary infection site (commonly pulmonary TB) spreading via:
  - **Hematogenous spread:** Through the arterial system or Batson's paravertebral venous plexus.
  - **Lymphatic drainage**.
  - **Direct extension**: From adjacent structures (e.g., lungs or visceral pleura).



Pathophysiology (Flow Chart)

Mycobacterium tuberculosis infection

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Hematogenous spread to vertebrae

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Involvement of cancellous bone

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Granuloma formation

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Caseation necrosis

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Destruction of intervertebral disc & vertebral bodies

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Collapse of vertebrae

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Spinal deformity (kyphosis / gibbus)

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Cold abscess formation

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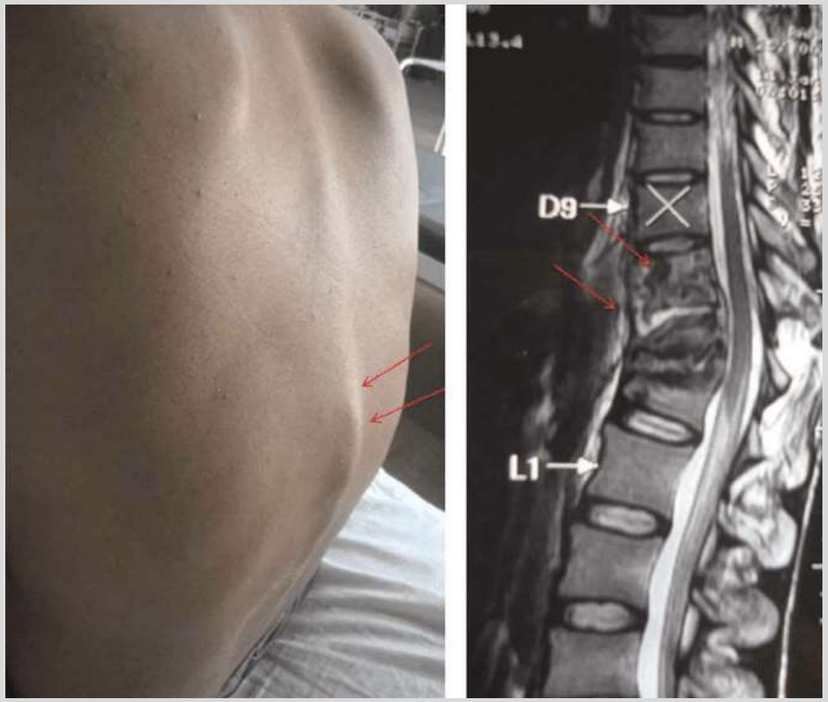
Spinal cord compression → Neurological deficits

Signs and Symptoms

- Constitutional Symptoms: Low-grade fever (evening rise), night sweats, anorexia, weight loss, fatigue.

- Local Symptoms:
- Back Pain: Localized, worsens with movement or coughing. "Night cries" in children due to muscle relaxation during sleep.
- Stiffness: Protective muscle spasm limiting spinal motion.
- Deformity: Visible prominence of the spine (Gibbus deformity/hunchback).

- Cold Abscess: Swelling in the groin (psoas abscess) or paraspinal region without acute inflammatory signs like heat or redness.
- Neurological Symptoms: Numbness, tingling, weakness in limbs, or loss of bladder/bowel control (signs of cord compression).



Diagnostic Evaluation

- Blood Tests:
- ESR (Erythrocyte Sedimentation Rate): Markedly elevated.
- CRP (C-Reactive Protein): Elevated.
- CBC: Lymphocytosis.

- Imaging:
- X-Ray: Shows lytic lesions, reduction of disc space, and wedge collapse.
- MRI (Gold Standard): Detects early marrow edema, soft tissue extension, and cord compression.

- Microbiology/Histology:
- Mantoux Test (PPD): Usually positive.
- CT-Guided Biopsy: Confirms diagnosis via AFB (Acid-Fast Bacilli) staining, culture, or PCR (GeneXpert).

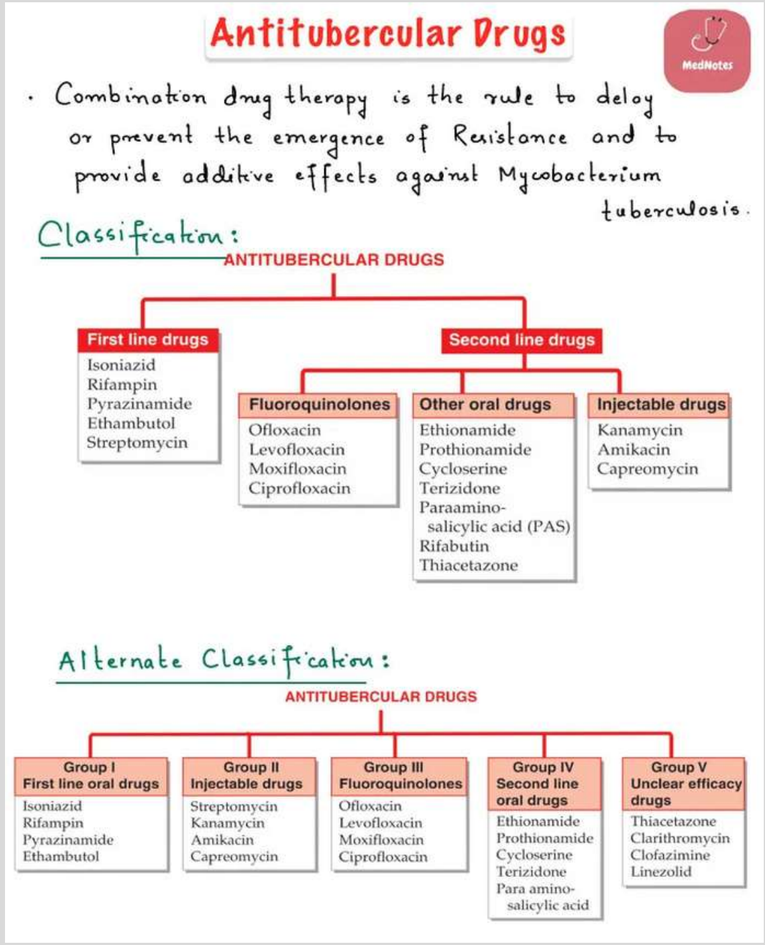
Pharmacological Management

The mainstay of treatment is Anti-Tubercular Therapy (ATT), usually administered for 12–18 months.

- **First-line drugs (RIPE):**
- Rifampicin
- Isoniazid
- Pyrazinamide
- Ethambutol

- **Adjuvants:** Pyridoxine (Vitamin B6) to prevent isoniazid-induced neuropathy.

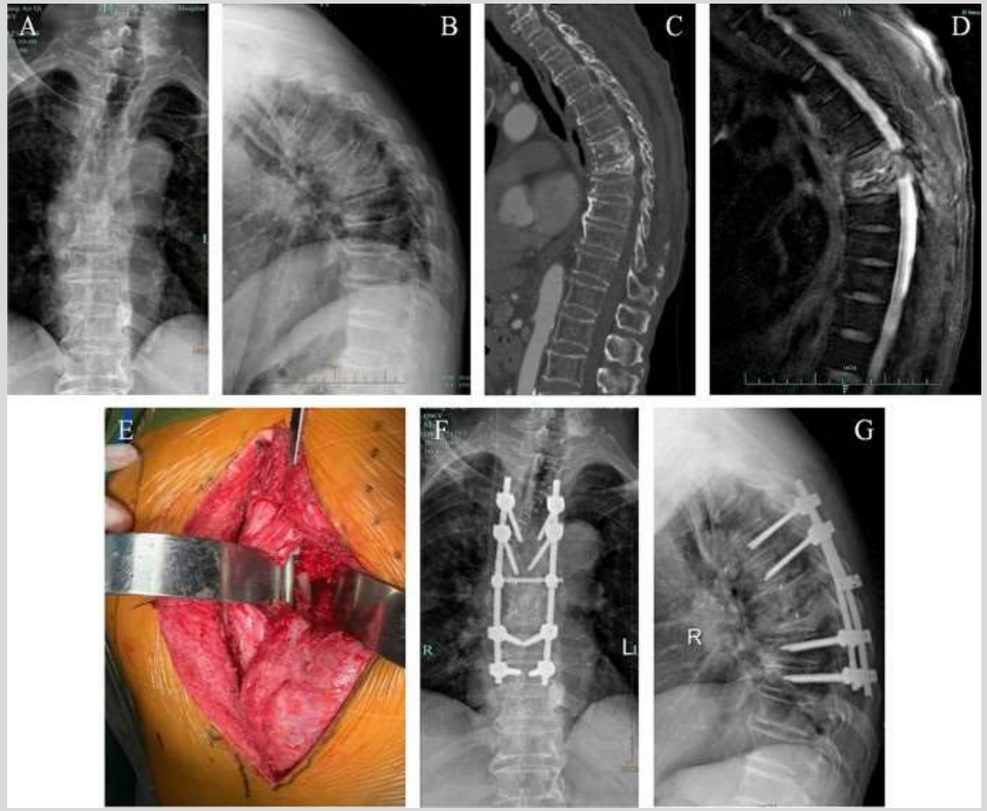
- **Analgesics:** NSAIDs for pain management



Surgical Management

Surgery is indicated if there is neurological deficit, spinal instability, severe kyphosis, or failure of medical management

- **Debridement**: Removal of necrotic bone and pus.
- **Decompression:** Relieving pressure on the spinal cord.
- **Spinal Fusion & Stabilization:** Using bone grafts (autograft/allograft) and instrumentation (rods/screws) to correct deformity and stabilize the spine.

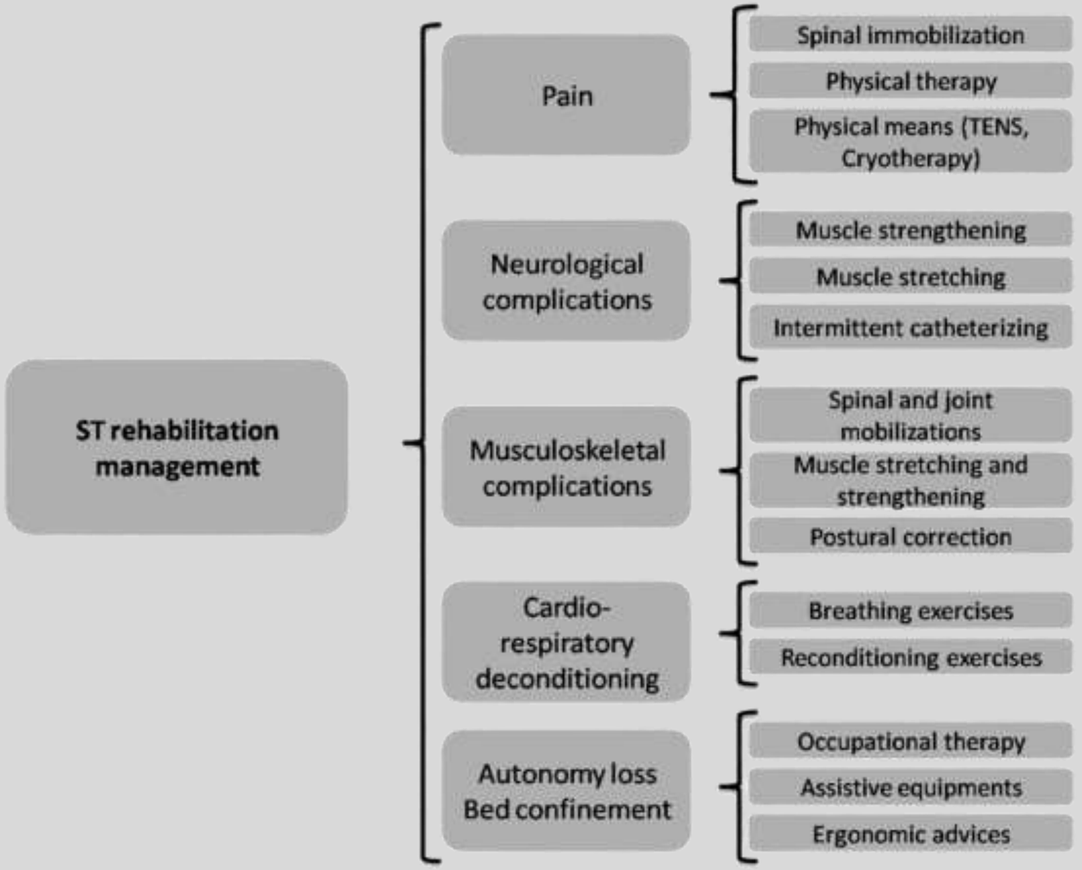


Nursing Management

- Pain assessment
- Strict bed rest
- Proper spinal alignment
- Brace/spinal support
- Drug compliance ensure karna
- Pressure sore prevention
- Bladder & bowel care
- Psychological support

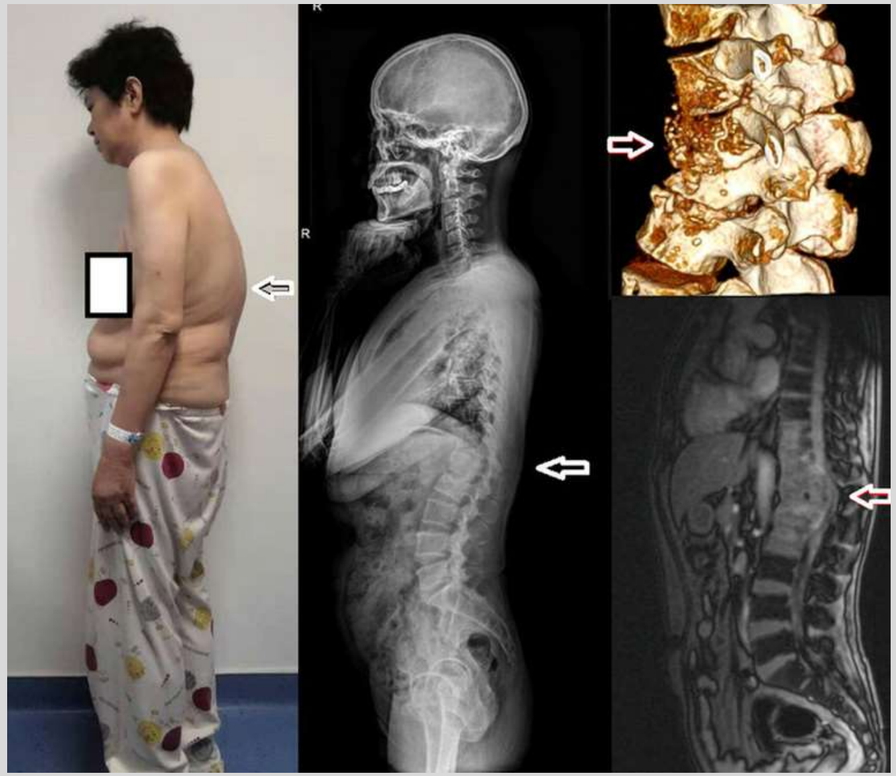
Rehabilitation

- Gradual mobilization
- Physiotherapy
- Muscle strengthening
- Posture correction
- Use of spinal braces
- Vocational rehabilitation



Complications

- **Pott’s Paraplegia**: Paralysis of the lower limbs due to cord compression (early onset due to edema/abscess, late onset due to bone deformity).
- **Kyphosis (Gibbus Deformity)**: Severe spinal curvature.
- **Cold Abscess:** Can track to the psoas muscle, groin, or retropharyngeal space.
- **Sinus formation:** Chronic discharging wound.



Preventio n

BCG Vaccination: At birth to prevent severe forms of TB.

Early Detection: Prompt treatment of pulmonary tuberculosis.

Contact Tracing: Screening family members of active TB patients.

Public Health: Improvements in hygiene, nutrition, and living conditions.